



**COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Metropolitan Boston – Northeast Regional Office**

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Secretary

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Acting Commissioner

May 19, 2003

Roberta Knight, Executive Secretary
Town Hall
8 West Common Street
Topsfield, MA 01983

Boyd Jackson, Chairman
Board of Selectmen
Town Hall
8 West Common Street
Topsfield, MA 01983

RE: Water Withdrawal Permit # 9P-3-17-298.01
Five-Year Review

Dear Ms. Knight and Mr. Jackson:

The Department of Environmental Protection (the "Department" or "DEP") has completed its review of all the water withdrawal permits issued in the Ipswich River Basin, including the Permit issued to the Town of Topsfield (the "Town" or "Topsfield"), Permit 9P-3-17-298.01 (the "Permit"). The Permit, as issued in 1991, authorized the Town to withdraw from its groundwater sources in the Ipswich River Basin an annual average daily volume of 0.17 million gallons per day (MGD), in addition to the 0.43 MGD previously registered to the Town. The Permit further allowed the Town to increase that annual average daily withdrawal to 0.21 MGD in 1994, to 0.23 MGD in 1999, and to 0.26 MGD in 2004.

In accordance with the Water Management Act Regulations, 310 CMR 36.33(4), the Department initiated a review of the Permit in 1994. As a result of that review, the Department modified the permit in 1997. The Department determined that actual withdrawals above the registered volume were significantly below the volumes allocated in the 1991 Permit. Accordingly, the Permit, as modified in 1997, provided that the authorized annual average daily withdrawal volume would remain at 0.17 MGD until 1999.

This information is available in alternate format by calling our ADA Coordinator at (617) 574-6872.

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When the Permit was modified in 1997, the Department intended to require the permit holders in the Ipswich River Basin to file for a permit review in 1999. The Department delayed that requirement until the United States Geological Survey (USGS) had completed its studies of streamflow and habitat in the Ipswich River. After these studies were nearly complete, on December 13, 2002, the Department issued an Order to Complete requesting Topsfield to submit additional information. The Town responded to the Order to Complete on March 13, 2003. The Department has reviewed the information from the USGS studies along with the Town's response to the Order to Complete and has issued the Modified Permit (enclosed herein) that reflects a balance between the public's need for a safe and reliable source of drinking water and competing environmental, economic and recreational interests.

As a result of this review, the Department has determined that there is documented evidence that water withdrawals, and to a lesser extent an increase of impervious area and development, along with the export of wastewater to other basins substantially contribute to low flow in the Ipswich River. These low flows significantly impair the ability of the river to function as a habitat for aquatic life and wildlife that are adapted to riverine conditions, an area for primary and secondary contact recreation, and a reliable source of safe drinking water. In these circumstances, the Department sees no reason to increase the volume above the amount originally allocated in the 1991 Permit. Instead, this Modified Permit keeps the permitted volume to the 0.17 MGD originally allocated in 1991.

The Department has further determined that unless and until conditions in the Ipswich River significantly improve, it is unlikely that any permittees in the Ipswich River Basin will be approved to increase their authorized withdrawals. In these circumstances, it is essential that all permittees keep their withdrawals at or below their authorized volumes. Consistent with this purpose, the Modified Permit provides that if for any year beginning in 2004, the Town exceeds its authorized volume, the Town shall implement a water bank that provides for keeping at least two gallons of water within the basin for every additional gallon of water demand. To avoid this requirement, the Town should work to keep its withdrawal within its total authorized volume.

Requirements applicable to permittees that withdraw water from the Ipswich River Basin for water supply purposes

To reduce the adverse impacts on the ability of the Ipswich River to sustain all its uses, the Department has established the following performance standards for permittees that withdraw water from the Ipswich River Basin for water supply purposes:

1. Residential per capita water use of 65 gallons per day or less;
2. Unaccounted for water of 10% or less; and
3. A summer withdrawal cap based on minimizing the difference between summer (May through September) and winter (January through March and November through December) withdrawals derived from each community's summer to winter withdrawal ratio.

The standards set forth above shall hereinafter be referred to collectively as the "Ipswich River Basin Performance Standards."

The standards of 65 gallons per day or less for residential per capita water use and 10% or less for unaccounted for water are taken from the Water Resources Commission performance standards for effective water conservation for public water suppliers. While these performance standards represent the minimum standards required for compliance with the Modified Permit, the Department believes that through the implementation of all the terms and conditions of the Modified Permit, the Town can exceed the performance standards for residential per capita water use and unaccounted for water. The Department will review the Drinking Water Program's Annual Statistical Report when evaluating compliance with these performance standards. The reporting requirements added in the Modified Permit are intended to standardize the information submitted to the Department to assess compliance with the Modified Permit and the Ipswich River Basin Performance Standards.

Since streamflow is particularly stressed during the low flow summer period, the summer withdrawal cap specifically targets conservation when water demands are high and streamflow is low. The summer withdrawal cap is intended to reduce the difference between summer and winter water use. Based on the four-year period 1999 through 2002, communities with an average summer to winter withdrawal ratio of 1.4 or greater are required to reduce the summer-winter difference in withdrawal volumes by 50% beginning in calendar year 2004. Communities with an average summer to winter withdrawal ratio that is less than 1.4 are required to reduce the summer-winter difference by 25% beginning in calendar year 2004. The median of the four-year summer to winter withdrawal ratio is 1.4. Reductions in the summer-winter difference are based on the year, within the four-year period from 1999 through 2002, when seasonal water use was highest.

In the four-year period from 1999 through 2002, Topsfield had an average summer to winter water use ratio of 1.58. Topsfield experienced its highest summer water use in 2001. Topsfield shall achieve a 50% reduction in the difference between its 2001 summer and winter water use. To achieve this reduction, Topsfield shall keep its water use at or below an average daily volume of 0.55 MGD from May 1st through September 30th. Topsfield's overall system-wide water use from May 1st through September 30th shall not exceed the seasonal cap of 84.15 million gallons. Applying this approach, the Department has determined that the summer withdrawal cap for Topsfield is 84.15 million gallons.

To assist permittees in complying with the Ipswich River Basin Performance Standards for residential per capita water use and seasonal water use, and to improve streamflows so that the Ipswich River can once again function as a viable habitat for aquatic life adapted to riverine conditions, and remain a reliable source of safe drinking water, the Department has required the following restrictions on nonessential outside water use:

1. All permittees withdrawing water from the Ipswich River Basin for public water supply purposes shall institute voluntary restrictions on nonessential outside water use whenever streamflow in the Ipswich River falls below 0.56 cubic feet per second per square mile (cfs/m) for three consecutive days in the period from May 1st through September 30th. The streamflow threshold of 0.56 cfs/m is based on wetted perimeter flow for a natural site in the Ipswich River as determined by the USGS habitat assessment study. A fully

wetted channel bed in riffles is an index of the carrying capacity of a stream that is proportional to fish-food producing areas.

2. All permittees withdrawing water from the Ipswich River Basin for public water supply purposes shall implement and enforce mandatory restrictions on nonessential outside water use whenever streamflow falls below 0.42 cfs for three consecutive days in the period from May 1st through September 30th. Based on evaluation of streamflow requirements, USGS determined that 0.42 cfs is a reasonable target for habitat protection necessary to support aquatic life adapted to riverine conditions. At a minimum, mandatory restrictions on nonessential outside water use shall include restrictions requiring hand-held hoses only and limiting the hours for outside watering to exclude 9 a.m. to 5 p.m. when evapotranspiration is typically the highest. Notwithstanding the foregoing, irrigation of public parks and recreational fields by means of automatic sprinklers equipped with moisture sensors or similar control technology may also be permitted outside the hours of 9 a.m. to 5 p.m.. Enforcement of mandatory restrictions shall include the assessment of penalties or the imposition of fines for violations.

A notice of the voluntary and mandatory restrictions shall be published in the local newspaper. When streamflow is greater than the thresholds set forth above for a period of seven consecutive days, the corresponding level of restrictions may be lifted.

The restrictions set forth above apply to nonessential outside water use. The term "nonessential outside water use" includes uses that do not have health or safety impacts, are not required by regulation, and are not needed to meet the core functions of a business or other organization. Examples of nonessential outside water uses shall include irrigation of lawns and ornamental plants; washing of vehicles unless necessary for operator safety subject to the exceptions set forth below; washing of building exteriors, outside structures, streets, sidewalks, and parking lots with the exceptions set forth below; the filling of swimming pools and hot tubs; and the operation of decorative pools and fountains. Examples of essential outside water uses may include water use for the production of food and fiber and the maintenance of livestock and poultry; outside water use by plant nurseries to maintain their stock; the watering of golf course greens; the washing of vehicles by commercial car washes, maintenance facilities, and dealers; and the washing of exterior building surfaces including windows, parking lots, driveways or sidewalks, prior to application of paint, preservatives, or stucco, or for the preparation of the surface prior to paving or repointing of bricks, or if required by health and safety regulations.

To enable the Town to comply with the Ipswich River Basin Performance Standards for residential per capita water use and seasonal water use, the Modified Permit requires the Town to develop and implement an enhanced water conservation plan in the event that in any year beginning with calendar year 2004, the Town is not in compliance with these Performance Standards. In light of this provision, the Department intends to review at least annually the progress that each permittee has made in meeting the Ipswich River Basin Performance Standards and in complying with the requirements of the Modified Permit. Moreover, the Department will take whatever action it deems appropriate to bring permittees into compliance with the modified permits and the Ipswich River Basin Performance Standards, including

without limitation requiring more stringent restrictions on nonessential outside water use, further modifying the permits in the Ipswich River Basin, and/or initiating enforcement actions with or without the assessment of civil administrative penalties. That being said, the Department remains committed to working with Topsfield and all the Ipswich River Basin permittees so that the Ipswich River may once again sustain all its uses as a habitat for aquatic life and wildlife that are adapted to riverine conditions, a place for secondary and primary contact recreation, and a reliable source of safe drinking water.

Restricting the Use of Unregulated Irrigation Wells

The Department is aware that restrictions on nonessential outside water use have already caused and may in the future cause an increase in the number of wells that are not subject to regulation under the Water Management Act and are used solely or partly for irrigation (“unregulated irrigation wells”) in communities within the Ipswich River Basin. The cumulative impact of these wells not only adversely affects the ability of the Ipswich River to function both as a viable habitat for aquatic life and a reliable source of safe drinking water, but also undermines the effort to reduce nonessential outside water use in the Ipswich River Basin in the summer, when flows are low. Because of the stressed nature of the Ipswich River, the Department has included among the Ipswich River Basin Performance Standards a performance standard that expressly acknowledges that it is appropriate to subject the use of unregulated irrigation wells located within communities wholly or primarily in the Ipswich River Basin to the same restrictions on nonessential outside water use triggered by streamflow thresholds and required by the Modified Permit, that apply to customers of the public water system. Communities that restrict the use of unregulated irrigation wells, while demonstrating compliance with the Performance Standards for residential per capita water use and seasonal water use, will avoid subjecting the customers of the public water system to a total ban on nonessential outside water use, whenever streamflow in the Ipswich River is below 0.42 cfs for three consecutive days between May 1st and September 30th.

Proactive Actions by the Town of Topsfield

The Department wishes to commend the Town of Topsfield for taking a number of steps aimed at ensuring that the Town has a safe and reliable source of drinking water both now and in the future. The Town should be especially proud of the work that Mr. William Wood and his staff have conducted to promote water conservation, to find and eliminate waste of water through leak detection and to deliver water to the Town’s customers. The Modified Permit incorporates additional measures pertaining not just to what the Water Department can do but also what the Town as a whole can do to maintain a sustainable and safe water supply. To ensure the continued success of this effort, it is essential that all Town departments, boards, officials, and employees work together to comply with the terms and conditions of the Modified Permit including, without limitation, the water conservation requirements.

Wetland Monitoring

The Modified Permit relieves the Town of the permit condition in the original permit to conduct monitoring of wetlands near the North Street well. Annual monitoring reports submitted

by the Town in a timely fashion indicate that the present operation of the North Street well has not resulted in significant impact to the wetland.

Procedure for Appeal

The Town has the right to appeal the Modified Permit in accordance with 310 CMR 36.40. Any such appeal must be received by the Department within twenty-one days of the date of receipt of the Modified Permit. Only the portions of the Modified Permit that reflect a modification of the Town's current permit may be the subject of an appeal, since the appeal period associated with the Town's current permit has expired.

If you have any questions regarding this permit, please contact Kellie O'Keefe at (978) 661-7765 or Richard Tomczyk at (978) 661-7817. Please note that the Northeast Regional Office of DEP will be moving in mid to late June to One Winter Street in Boston; the phone numbers for these staffers at the new address are not yet known. Please check our website www.state.ma.us/dep/nero for latest updates.

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Sincerely,

Madelyn Morris
Deputy Regional Director
Bureau of Resource Protection

MM/rt

Enclosures: Water Withdrawal Permit

cc: Duane LeVangie, DEP, Water Management, Boston
William Wood, Topsfield Water Department, 279 Boston Street, Topsfield, MA 01936
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